

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of the Claims

1. (Currently amended) A device for delivering an aerosolized compound, the device comprising:

a housing comprising:

an upstream end comprising an inlet; and

a downstream end positioned opposite the upstream end and comprising an outlet, wherein an airflow path is formed from the inlet to the outlet;

a reservoir configured to store the compound and disposed between the upstream end and the downstream end such that the reservoir is in the airflow path downstream from the inlet and upstream from the outlet;

a system disposed between the upstream end and the downstream end such that the system is in the airflow path downstream of the inlet and upstream from the outlet, the system comprising:

an entry port fluidly connected to the reservoir; and

an ejection device element to generate particles of a desired size for ~~physical~~ ejection through one or more apertures from an ejection head of the device ~~element~~, wherein the particles comprise a compound; and

a suspension-like attachment connecting the system to the housing such that the airflow is substantially unobstructed when between the system and the housing,

wherein an inner surface of the housing, proximal to the ejection head and extending to the outlet, is contoured to minimize turbulence.

aerosolized by a thermal droplet ejection device to produce droplets having a uniform size and composition for administration by inhalation

2. (Original) A device according to claim 1 wherein the compound is stored in the reservoir in a liquid formulation.
3. (Original) A device according to claim 1 wherein the compound is a pharmaceutical compound.
4. (Original) A device according to claim 3 wherein the pharmaceutical compound is selected from the group consisting of a protein, a small molecule, and a gene delivery vehicle.
5. (Original) A device according to claim 3 wherein the pharmaceutical compound is a protein selected from the group consisting of a hormone, a receptor, an antibody, and an enzyme.
6. (Original) A device according to claim 3 wherein the pharmaceutical compound is a small molecule drug or prodrug.
7. (Original) A device according to claim 3 wherein the pharmaceutical compound is a gene delivery vehicle.
8. (Original) A device according to claim 1 wherein the reservoir and particle-generating system are disposed within the housing.
9. (Original) A device according to claim 8 wherein the reservoir is aerodynamically shaped.
10. (Original) A device according to claim 1 wherein the reservoir is detachable.
11. (Original) A device according to claim 1 wherein the reservoir and particle-generating system are integrated into a single detachable unit.

12. (Original) A device according to claim 1 wherein the particle-generating system is an electronic ejection device.
13. (Original) A device according to claim 12 wherein the electronic ejection device uses heat to generate particles ejected from the ejection head.
14. (Original) A device according to claim 12 wherein the electronic ejection device uses a piezoelectric component to generate particles ejected from the ejection head.
15. (Original) A device according to claim 1 wherein the desired size of the particles is a size that allows the particles to transit to and be deposited in alveoli.
16. (Original) A device according to claim 15 wherein at least about 90% of the particles range in size from about 1 μm to about 5 μm .
17. (Original) A device according to claim 16 wherein at least about 60% of the particles have a mass median aerodynamic diameter of about 3 μm .
18. (Original) A device according to claim 1 wherein the substantially unobstructed airflow is substantially laminar prior to exiting the housing outlet.
19. (Original) A device according to claim 1 wherein the substantially unobstructed airflow comprises a substantially homogeneous mixture of the ejected compound and air in the airflow prior to exiting the housing outlet.
20. (Currently amended) A device according to claim 1 wherein ejection is by digitally controlled electronic ejection ~~an inner surface of the housing, proximal to the ejection head and extending to the outlet, is contoured to minimize turbulence.~~

21. (Currently amended) A method of delivering an aerosolized compound to a patient, the method comprising inhaling air which contains a compound through a device while the particle-generating system of the device is actuated, wherein said device comprises:

a housing comprising:

an upstream end comprising an inlet; and

a downstream end positioned opposite the upstream end and comprising an outlet, wherein an airflow path is formed from the inlet to the outlet;

a reservoir configured to store the compound and disposed between the upstream end and the downstream end such that the reservoir is in the airflow path downstream from the inlet and upstream from the outlet;

a system disposed between the upstream end and the downstream end such that the system is in the airflow path downstream of the inlet and upstream from the outlet, the system comprising:

an entry port fluidly connected to the reservoir; and

an ejection device ~~element~~ to generate particles of a desired size for physical ejection through one or more apertures from an ejection head of the device ~~element~~, wherein the particles comprise a compound; and

a suspension attachment connecting the system to the housing such that the airflow is substantially unobstructed when between the system and the housing,

wherein an inner surface of the housing, proximal to the ejection head and extending to the outlet, is contoured to minimize turbulence.

22. (Original) A method for generating an air stream comprising a compound according to claim 21, wherein the air is drawn from inlet to outlet.

23-84. (Cancelled)